

CLAIMS

WHAT IS CLAIMED IS

1. A vehicle roof system, comprising:
a roof frame having an inwardly pointing edge;
a roof module permanently and fixedly attached to the roof frame; and
a rigid safety element disposed in the roof module and having at least one portion extending toward the edge in a plane disposed below the edge.
2. The vehicle roof as recited in claim 1, wherein the safety element is spaced away from the edge during normal assembly of the roof frame and the roof module.
3. The vehicle roof as recited in claim 1, wherein the edge comprises a flange that is integrally formed with the roof frame as an inwardly-pointing extension of the roof frame.
4. The vehicle roof as recited in claim 3, wherein the flange is a plate-shaped sheet metal portion.
5. The vehicle roof as recited in claim 1, wherein the roof module is attached to the edge.
6. The vehicle roof as recited in claim 5, wherein the roof module is attached to the edge by an adhesive.
7. The vehicle roof as recited in claim 6, wherein the adhesive forms a continuous adhesive bead on the entire edge.
8. The vehicle roof as recited in claim 1, wherein the roof module is attached to the edge by at least one fastener.

9. The vehicle roof as recited in claim 1, wherein the safety element is a sheet metal part.

10. The vehicle roof as recited in claim 1, wherein the roof module comprises an exterior skin and a foam backing, wherein at least a portion of the safety element is embedded in the foam backing under the exterior skin.

11. The vehicle roof as recited in claim 10, wherein the safety element is completely embedded in the foam backing.

12. The vehicle roof as recited in claim 1, wherein the safety element has a hollow profile that is open towards the edge, the hollow portion receiving the edge in the event of a displacement of the edge toward the safety element.

13. The vehicle roof as recited in claim 12, wherein the safety element has a C-profile.

14. The vehicle roof as recited in claim 12, wherein the safety element has a double-T profile.

15. The vehicle roof as recited in claim 1, wherein the safety element is a surrounding reinforcement frame of the roof module.

16. The vehicle roof as recited in claim 15, wherein the reinforcement frame is continuous.

17. The vehicle roof as recited in claim 1, further comprising a seal that forms a sealed connection between the roof module and the roof frame.

18. A vehicle roof system, comprising:
a roof frame having an inwardly pointing edge, the edge comprising a flange that is integrally formed with the roof frame; and
a roof module permanently and fixedly attached to the flange by at least one of an adhesive and at least one fastener, the roof module having an exterior skin and a foam backing; and
a rigid safety element at least partially embedded in the foam backing under the exterior skin, the safety element having first and second portions extending toward the flange, wherein the safety element is spaced away from the flange during normal assembly of the roof frame and the roof module, and
wherein the first portion extends in a plane disposed below the flange and the second portion extends in a plane disposed above the flange to form hollow profile that is open towards the edge, the hollow portion receiving the edge in the event of a displacement of the edge toward the safety element.
19. The vehicle roof as recited in claim 18, wherein the flange is formed from a plate-shaped sheet metal portion.
20. The vehicle roof as recited in claim 18, wherein the adhesive forms a continuous adhesive bead on the entire edge.
21. The vehicle roof as recited in claim 18, wherein the safety element is a sheet metal part.
22. The vehicle roof as recited in claim 18, wherein the safety element is completely embedded in the foam backing.
23. The vehicle roof as recited in claim 18, wherein the safety element has a C-profile.

24. The vehicle roof as recited in claim 18, wherein the safety element has a double-T profile.

25. The vehicle roof as recited in claim 18, wherein the safety element is a surrounding reinforcement frame of the roof module.

26. The vehicle roof as recited in claim 18, wherein the reinforcement frame is continuous.

27. The vehicle roof as recited in claim 18, further comprising a seal that forms a sealed connection between the roof module and the roof frame.